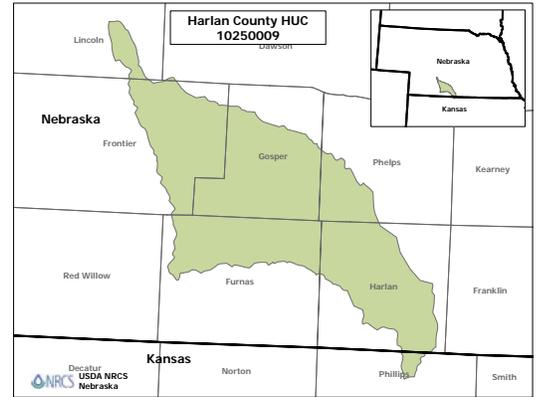




## Harlan County Reservoir HUC#: 10250009

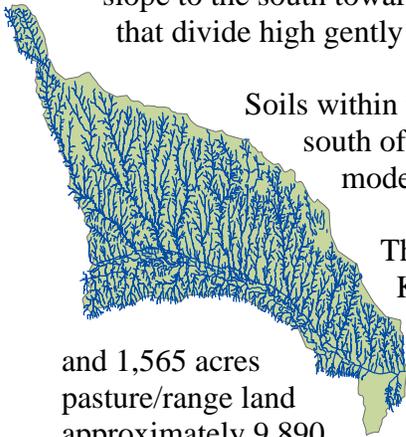
### Introduction

The Harlan County Reservoir HUC is located in south central Nebraska and north central Kansas. This watershed covers the counties of Lincoln, Frontier, Gosper, Phelps, Furnas and Harlan in Nebraska, and Phillips county in Kansas. The total surface area of this watershed is 865,122 acres. The total estimated area of this watershed in Nebraska is 853,875 acres with 11,246 acres in Kansas.



### Physical Description

The Harlan County Reservoir Watershed area consists of upland silty soils that have formed in loess as well as river valley soils that have formed in alluvial and colluvial material. Slopes are very gently sloping to steep and slope to the south towards the Republican River Valley. Deep entrenchments have developed steep canyons that divide high gently sloping divides that are result of erosion of the loess deposits along the uplands.



Soils within this watershed consist mainly of silty soils on loess uplands with loamy soils found south of the Republican River Valley. Soils in the upland areas are well drained to moderately well drained soils.

The watershed contains approximately 720 farms, 711 are in Nebraska and 9 are in Kansas. Land uses in this watershed consist of irrigated cropland, dryland cropland, and pastureland. In 2002 an estimated 314,985 acres were harvested in Nebraska and 1,565 acres in Kansas. Approximately 209,128 acres of this watershed were used primarily for pasture/range land in Nebraska and 2,651 acres in Kansas. Thru CRP sign up 29, there are approximately 9,890 acres in CRP in Nebraska and approximately 194 acres in Kansas.

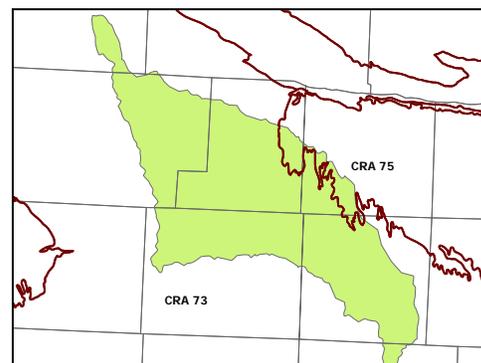
Nebraska irrigated 189,412 acres in 2002 and Kansas irrigated approximately 100 acres within this watershed. This included both pivot and surface irrigated fields.

### Common Resource Area:

Ninety Percent of the Harlan County Reservoir watershed lies within CRA Area 73 with less than 10% within CRA Area 75. General characteristics can be attributed to CRA Area 73 described as follows:

#### CRA 73

Nearly all this area is in farms, and about three-fifths is dry-farmed cropland. Winter wheat and grain sorghum are the major crops in much of the area, but corn is important in the north. Feed grains and hay are other major crops. About 2 percent of the area, mostly narrow



bands of bottom land and terraces along the Republican and Platte Rivers and their major tributaries, is irrigated. Corn, alfalfa, small grains, and hay are the principal crops grown on irrigated land, but some potatoes and vegetables are grown. One-third or more of the area is in native grasses used for grazing.

Average annual precipitation 500 to 625 mm. Maximum precipitation is from midspring to early in autumn. Precipitation in winter is snow that ranges from about 45 cm annually in the south to 60 cm in the north. Average annual temperature 10 to 13 C. Average freeze-free period—150 to 180 days, increasing from northwest to southeast.

Native Vegetation consists of little bluestem, big bluestem switchgrass, western wheatgrass, and sideoats grama characterize the vegetation on loamy soils. Blue grama, buffalograss, and western wheatgrass characterize the vegetation on clayey soils on uplands.

### **Common Land Unit**

FSA's CLU layer is available for the entire Harlan County Reservoir watershed area.

### **Resource Concerns**

Major resource concerns for this watershed are: Soil Quality, Water Quality, Surface & Ground Water Quantity. Other concerns are Rangeland/Grasslands, Wetlands, Wildlife, and Forests. Water erosion and soil blowing are the principal hazards on the upland soils within this watershed. An insufficient amount of rainfall for crops is a concern during most growing seasons. Measures that conserve water by controlling runoff and measures that maintain the fertility level of the soils are the chief management needs. Measures that control soil blowing and improve tillage and fertility are important management needs.

### **Studies or Assessments**

The Nebraska Department of Environmental Quality has identified several portions of the Republican River and the Harlan County Reservoir as being impaired in its 2004 Surface Water Quality Integrated Report. The category level is a level 5 which is defined as: Waterbodies where one or more beneficial uses are determined to be impaired by one or more pollutants and all of the TMDLs have not been developed.

The Nebraska Department of Natural Resources has imposed Well Moratoriums within the southern portion of this watershed. This restricts the drilling of new wells within the identified areas of this watershed.

This watershed also lies within a Ground Water Management Area in the northern portion of the watershed where the management concern is ground water quality.

### **Census & Social Data**

Agriculture is one of the main income sources for the communities within this watershed. It was estimated that in 2003 there approximately 916 workers engaged directly in the production of agricultural commodities, either livestock or crops; whether as a soil proprietor, partner, or hired laborer. Of the estimated 720 farms within this watershed, approximately 684 are owned and operated by Sole Proprietors who are either employed in farming full or part time. Average net farm income from agriculture in 2002 was \$30,597 per farm and average production expenses were estimated to be \$80,161 per farm. The average market value per farm of land and buildings in 2002 was \$272,367 within this watershed.

Operator characteristics are as follows for this watershed: Most farms are owned by males with the average age of principle operators being 53.4 years of age. There are approximately 74 Nebraska Limited Resource Farmers within this HU.

## NRI or Progress Data

Conservation activities include the following for 2004: Conservation practices were applied to approximately 12,263 acres in Nebraska and approximately 77 acres in Kansas, across all resource concerns within this watershed. Specifically conservation practices were applied on 7,417 acres of cropland in Nebraska and 14 acres in Kansas, and 118 acres of pasture in Nebraska.

<b>PRMS Profile for Harlan County reservoir 8 Digit HUC - 10250009</b>							
<b>PRMS Data</b>	<b>1999</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>
Planned	25,815	22,577	17,851	15,421	18,357	NA	48,145
Applied	10,250	10,282	13,174	21,537	28,271	NA	38,073
All Customer Types	2,512	5,647	3,327	1,367	113	NA	241
<b>Conservation Treatments Applied</b>							
Contour Buffer Strips (332) (ac)	26	15	0	27	27		
Reduction in the Acreage of Cropland Soils Damaged by Erosion (Ac.)	3,899	4,338	2,088	1,174	6,540		14,345
Field Border (386) (ft)	0	67,091	5,280	5,850	0		
Filter Strip (393) (ac)	25	6	0	0	0		
Grassed Waterway (412) (ac)	1	0	0	0	0		
Nutrient Management (590) (ac)	914	689	835	3,143	6,646	4,129	21,012
Pest Management (595) (ac)	2,504	4,878	1,760	2,989	6,253	4,838	20,791
Prescribed Grazing (528) (ac)	6,412	8,792	7,120	6,529	6,228	2,783	1,055
Prescribed Grazing (528A) (ac)							5,402
Residue Management, (329A-C) (ac)	3,426	3,710	6,210	5,031	5,253		21,848
Tree/Shrub Establishment (612) (ac)	1	3	1	10		3	
Wetlands Created, Restored, or Enhanced (657, 658, 659) (ac)	0	0	0	30			
Total Wildlife Habitat (644, 645) (ac)	2,297	5,089	1,044	241	771	499	421
Irrigation Water Management (449) (ac)	4,247	1,868	4,236	6,950	11,577	4,141	21,233
Windbreak/Shelterbelt (380, 650) (ft)	24,321	22,540	24,321	17,276	19,577		4,362
Terrace (600) (ft)	NA	NA	NA	NA	NA	253,450	449,797
Fence (382) (ft)	NA	NA	NA	NA	NA	5,409	49,907
Conservation Crop Rotation (328) (ac)	NA	NA	NA	NA	NA	5,922	21,474
Pipeline (516) (ft)	NA	NA	NA	NA	NA	55,051	76,694